

**SBIR COMMERCIALIZATION**

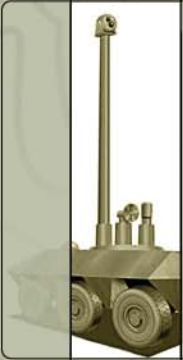
# **U.S. ARMY**



**FUTURE  
COMBAT  
SYSTEMS**



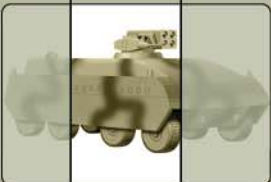
## FUTURE COMBAT SYSTEMS



The Army is undertaking a transformation into a more responsive, deployable and sustainable force, while maintaining its high levels of lethality, survivability and versatility. GEN Peter J. Schoomaker, the new Army Chief of Staff, reaffirmed this strategy, "Our recent combat operations reinforce the requirements for units and echelons that are flexible and tailorable. As long as the United States Army has existed we have transformed...and we always will. For four years our Army has asked hard questions and made tough choices. We will continue to go where the answers to those questions take us."



This new force, called the Future Force (FF), is intended to meet the full spectrum of present and future Army missions. The cornerstone of the FF capability and transformation is the Future Combat Systems (FCS) program. This reconfigurable, adaptive system of systems will provide a common baseline capability that increases the Army's ability to conduct network/collaboration-centric warfare. Within this decade, the Army is working to develop and demonstrate first generation FCS and all its enabling technologies. This transformation had and will continue to have a major impact on the entire Army Science and Technology (S&T) enterprise – to include the Small Business Innovation Research (SBIR) program. The SBIR program is aligned with FCS and FF technology categories and this will be an ongoing process as FF/FCS needs change and evolve.



“The Army has a robust Small Business Program, and we are very proud of that fact. As we transform America’s Army into the Future Force, we want small businesses to continue to play a major role in our future.”



The needs of our warfighters drive the Army Science and Technology (S&T) program and the Army’s initiatives on Future Force (FF) and Future Combat Systems (FCS). My staff provides guidance to the Army Small Business Innovation Research (SBIR) Program Manager to ensure that solicited topics are current, relevant and aligned with these Army initiatives. The current SBIR Phase II proposals selected for award are 100% aligned with FF and FCS objectives, which means a \$165M per year addition to Army S&T in support of the Army Vision. The Army has also established the new Venture Capital initiative aimed at developing certain needed technology outside of normal procurement processes. Some of these current SBIR projects are likely candidates to take advantage of this opportunity in the future. With strong participation from the S&T community, there

is a greater chance of SBIR successes that will achieve current Army research goals, thereby leading to increased opportunity for incorporation into the acquisition process.

The Army has a robust Small Business Program, and we are very proud of that fact. Last year, the Army awarded nearly 34 billion dollars to all businesses. Of that amount, small businesses received more than 27 percent – 9 billion dollars. As we transform America’s Army into the Future Force, we want small businesses to continue to play a major role in our future.

This brochure highlights some of the tremendous benefits the Army realizes through SBIR. As our nation’s largest source of early-stage technology financing, this billion-dollar program enables hundreds of small businesses to move concepts from drawing boards to the marketplace. Through SBIR and other similar programs, we now know that the best ideas do not necessarily come from the labs of large corporations or even from our government labs. Most often, innovative technologies are invented by creative individuals and small, entrepreneurial companies whose workers truly think “outside the box.”

On behalf of our brave men and women in uniform and the Army’s leadership, I thank you for your tremendous contributions to our warfighters, America’s Army, and our nation.

Dr. Thomas H. Killion  
*Acting Deputy Assistant Secretary for  
Research and Technology/Chief Scientist*

Excerpt from the 2003 U.S. Army Phase II Quality Awards Ceremony  
August 21, 2003



# ARMY SBIR

## THE SMALL BUSINESS INNOVATION RESEARCH PROGRAM

### Phase I

Army scientists and engineers develop SBIR solicitation topics that address current and anticipated warfighting technology needs. While the Department of Defense publishes three solicitations annually, the Army participates only in the final, or spring, solicitation. Small businesses participate by submitting proposals for Phase I feasibility demonstrations of their innovative solutions to these topics.

### Phase II

Successful SBIR projects may move through three phases. Phase I is the entry point where a company proves the feasibility of its concept in six months for up to \$70,000. An option for up to \$50,000 funds interim Phase I-Phase II activities, if the project is selected to receive a Phase II award.

### Phase III

Phase II is a substantial R&D effort, up to \$730,000 over two years, which results in a dual-use technology, product, or service. SBIR is very competitive – about one in ten Phase I proposals and one in three Phase II proposals are selected for award.

Phase III, the commercialization phase, is the goal of every SBIR effort. In Phase III, the successful company markets its dual-use product or service either to the Government, the private sector, or both!

The Army is proud to present the following SBIR success stories. They describe some of the benefits that the Army, the small business community, and our Nation received through this dynamic program.





ARMY



SBIR





## Vehicle Digital Compass (TACNAV)

### Phase III IMPACTS

- TACNAV is extensively used by the U.S. Army in Afghanistan and Iraq.
- KVH produced in excess of 8,000 military digital compass systems currently in use and is the most widely fielded tactical navigation system in the world. They have been selected for the military vehicles of the U.S., Canada, U.K., France, Germany, Italy, Sweden, Australia, New Zealand, Saudi Arabia, Malaysia, and Taiwan.
- Current revenues exceed \$42M from products resulting from this SBIR technology.



Fast-paced, modern warfare requires precise situational awareness. To be effective, vehicles, weapon systems, individual soldiers, and commanders must always know exactly where they are in time and space. This task is extremely difficult because of longer lines of movement and communication, metal in vehicles disturbs the magnetic field that navigation tools use for compass readings, and effective GPS jamming technology.

The solution created by KVH uses a tri-axial magnetometer to identify and correct for distortions attributed to the magnetic signature of the vehicle. The KVH digital compass senses the earth's magnetic field and measures the vehicle's unique magnetic distortion. This data is used to adjust the

heading information as necessary to compensate for the vehicle's distortion, providing an extremely precise compass system that provides navigation data free from electronic jamming or blocking.

KVH made further important developments, including the use of fiber optic gyros, to greatly improve the accuracy of tactical navigation and targeting systems. The tactical navigation systems offer a range of capabilities, including GPS backup and enhancement, vehicle position, hull and turret azimuth, steer-to/cross-track error displays, and far target location, providing continuous, jam-proof position data.





## Improved Transparent Armor and Optics



Technology Assessment and Transfer, Inc. (TA&T) developed innovative hot isostatic pressing methods that produce 4-inch by 4-inch magnesium aluminate spinel transparent armor tiles that exceed the ballistic performance capabilities of sapphire. TA&T extended this capability to 11-inch diameter plates, the largest transparent spinel plates ever produced. This breakthrough established the pathway for transparent armor plates and windows potentially as large as 30 inches. This successful effort required ingenuity in several areas including powder handling, sintering aid concentrations and powder blending, die design and selection, hot pressing and HIPping protocols, and quality control procedures.

The resulting technology led to incredibly rapid spin-offs for the Sniper XR tracker production lenses for Air Force aircraft and

Army Common Missile prototype domes. Under a separate but parallel project, TA&T refined techniques for spinel multimode tracker and seeker optics, achieving unprecedented levels of refractive index homogeneity for a transparent polycrystalline ceramic. This property combined with in-line transparency above 80% produced spinel lenses with superior imaging quality. The performance and potential cost advantages of spinel created immediate opportunities for insertion into numerous military electro-optical systems. As many as 300,000 transparent missile domes may be required for future Army aircraft, ground vehicles and infantry armament. Technology Assessment and Transfer, Inc. also demonstrated the potential of producing larger size transparent armor which could result in sizeable military and civil transparent armor markets.



### Phase III IMPACTS

- Over 136 units sold generating over \$1.01M in sales.
- Current customers include Lockheed Martin Missiles and Fire Control and Northrop Grumman Electronic Systems.
- Over \$704K in Government/DoD investments for Phase III.
- Over \$1.7M in non-DoD contributions for Phase III.





### Phase III IMPACTS

- Over \$3M in sales revenue to date.
- Nine separate contracts with the Army, Navy, and Air Force to implement CORE technology throughout Department of Defense (DoD). Customers include: U.S. Army Research Institute; U.S. Air Force Research Laboratory; U.S. Navy Space and Naval Warfare Systems Command; and DoD Modeling and Simulation Office.
- CORE is trademarked and has 1 patent pending.
- Contract signed to implement CORE in a commercial network security system.
- Recipient of 1998 U.S. SBA Tibbetts award for R&D excellence.

## Cognitive Object Reasoning Engine (CORE)



The Army is looking more and more to automation and knowledge management to solve information technology problems, especially in testing equipment and soldier training. There is a pressing need for software tools that can quickly and efficiently add complex logic to computer software to represent realistic human behaviors, to produce decision aids, to automate command and control functions, and for network security. To address this pressing requirement, Bevilacqua Research Corporation developed a set of software development tools that, through the use of new methods in hybrid artificial intelligence (AI), allow advanced computer logic to be quickly and easily created. The Cognitive Object Reasoning Engine (CORE) toolkit allows users to implement deep human cognitive reasoning in computer software much more easily than with current methods. The CORE approach solves many of the common problems associated

with current complex AI systems, making the implementation of large amounts of human cognitive intelligence easier and more maintainable.

CORE is used throughout the Department of Defense in Command, Control, Communications, Computers, and Intelligence (C4I) systems, decision aids, modeling and simulation, and Course of Action Analysis (COAA). Its utility to the DoD continues to grow each year with its recent implementation in a virtual threat simulator and as a method to automate the battle damage assessment process. It is also being incorporated in the commercial sector through an agreement with a network security software company and negotiations are in progress for potential international sales to a Korean video game manufacturer.





## Digital Biomechanics

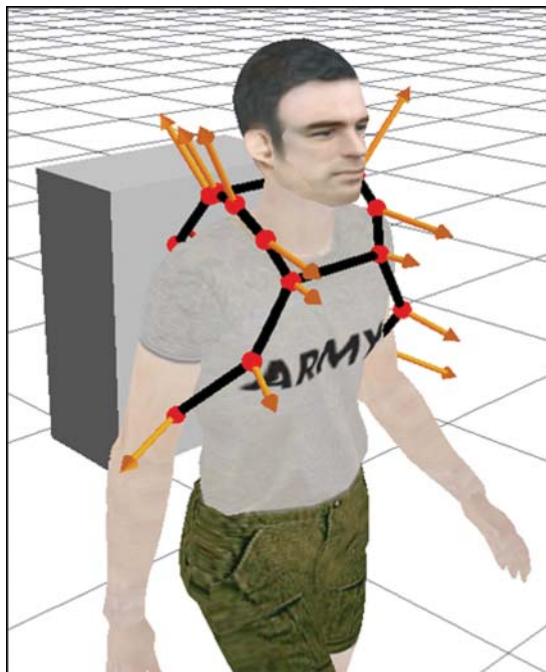
### Phase III IMPACTS



Digital Biomechanics™ is the first physics-based human simulation to model equipment on soldiers engaged in actual tasks, from walking, running, and crawling to completing a virtual obstacle course. This technology uses robot-control technology and physics-based models to provide human simulation that obey the same laws of locomotion, balance, and loading as real people do in the physical world. Researchers at the U.S. Army's Research Institute for Environmental Medicine (USARIEM) and Natick Soldier Center is using Digital Biomechanics™ to improve the design process for helmets, body armor, backpacks, and other warrior equipment. It is used to assess the impact of prototype designs on soldier performance before

building physical mock-ups and testing on live soldiers, thereby shortening design/test cycles and reducing design costs and risk to personnel.

Digital Biomechanics™ is currently used by a variety of customers, both military and commercial. Sony Corporation is using Digital Biomechanics™ to engineer advanced behavior in its humanoid entertainment robots. Sarcos Corporation is relying on Digital Biomechanics™ to design and analyze an advanced robotic exoskeleton being funded by the Defense Advanced Research Projects Agency.



- Digital Biomechanics™ received \$5.275M in post-SBIR funding, including ongoing funding from the U.S. Army Natick Soldier Center and from the Objective Force Warrior acquisition program.
- The U.S. Marines will use Digital Biomechanics™ for their Integrated Infantry Combat System program in FY04.
- Working with USARIEM to validate Digital Biomechanics™ against live biomechanical data recorded from active-duty soldiers in load carriage studies.



## Pavement Profile Scanner

### Phase III IMPACTS

- 4 complete units sold generating over \$946K in sales.
- Over \$295K of non-DoD contributions for further R&D.



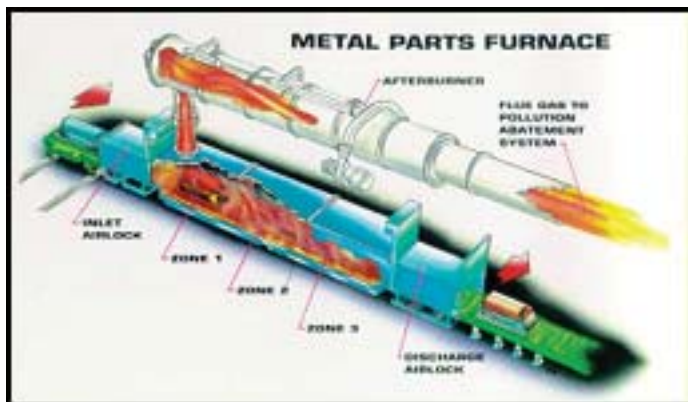
The Pavement Profile Scanner (PPS) developed the Rolling Wheel Deflectometer concept patented by Phoenix Scientific, Inc. This resulting scanner technology proven to be ideally suited to improve the way conventional pavement condition data such as Rut and Ride indexes, are obtained. The PPS measures the profile along a 14-foot line in 0.75 milliseconds up to 1,000 times per second and produces a transverse profile covering the shoulder to the lane divider markings. The PPS consists of all solid-state electronics, cone optics, and a motor/bearing assembly. It is very reliable and rugged.

The PPS is a revolutionary new technology developed specifically for testing pavements and has been proven during five years of prototype testing and operation. In the fall of 2001, it performed the first network level production jobs, surveying over 2,000 miles of the California Forest Road Network.

It provides more accurate pavement condition data with an installation that is safer to operate and much less vulnerable to damage, all at a price that is competitive with existing technology.



## Chemical Demilitarization Simulations



Incineration is one of the technologies used by the U.S. Army to destroy the highly toxic chemical agents and munitions contained within the Chemical Weapons Stockpile. Reaction Engineering International (REI) is developing advanced computer simulation tools for analyzing chemical demilitarization incinerators. These tools integrate the range of models and visualization methods that are required to perform simulations to analyze the performance and emissions from military incinerator units under a broad range of operating conditions and configurations for different munitions and storage containers. The simulation workbench developed a tightly integrated problem solving process, with plug and play functionality, designed for use by non-specialists, and provides the capability to interrogate a simulation at multiple levels

of detail in a seamless manner. The simulations provide the researcher with detailed information on the local gas properties, such as gas temperature, species concentrations (e.g., oxygen, agent, combustion products, products of incomplete combustion), and pressure. Likewise, the models also provide detailed information on the surface temperatures and heat fluxes to the furnace walls and munitions within the incinerator. This information is used to develop a deeper level of understanding of the combustion process, agent destruction, and product species concentrations when processing munitions or equipment contaminated by GB, VX and mustard gas. The models also provide the ability to study a wide range of "what if" scenarios for both standard and emergency incinerator operation.

### Phase III IMPACTS

- \$337K in sales to DoD
- \$98.5K in sales to U.S. EPA- National Homeland Security Research Center
- Models for chemical agent decomposition contained in the Incinerator Simulator used to convince regulators to allow chemical weapons incineration plant to resume full operation after an agent detect incident. Resulting long term operating cost savings to the chemical weapons program estimated to be in excess of \$1B.
- Incinerator Simulator being used in U.S. Army Chemical Materials Agency (CMA) Risk Issue Matrix (RIM) project with Washington Group International (WGI) to evaluate processing of undrained mustard projectiles in Metal Parts Furnace.
- Incinerator Simulator being tailored for use by EPA and National Homeland Security Research Center to investigate methods to incinerate building materials contaminated with agents from a chemical or biological terrorist attack on an office building.

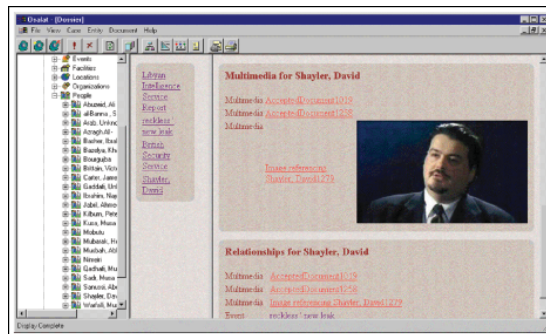




## Automated Intelligence Analysis Tool

### Phase III IMPACTS

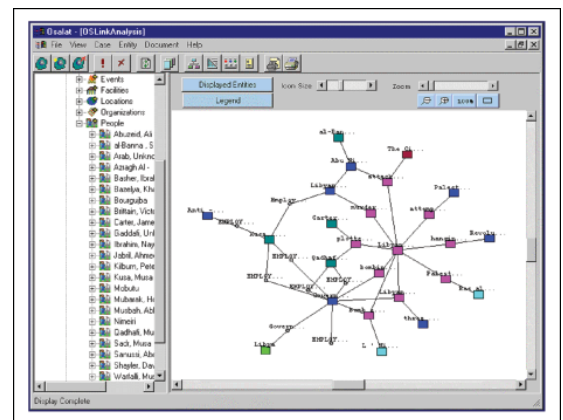
- Selected to provide the Situation Understanding Package for the Future Combat Systems for an estimated \$55M.
- Selected as one of Austin, Texas' 50 fastest growing small businesses for four consecutive years.



Austin Info Systems produced a commercially available intelligent search and retrieval tool known as the Open Source Automated Link Analysis Tool (OSALAT). The Internet has proven to be an extraordinary information source, but, at the same time, can quickly become information overload for intelligence analysts. The challenge is to find relevant and timely data for mission planning. OSALAT provides an intelligent search agent to find relevant documents; organizes the results for easy review; supports gathering information from external sources; extracts information from the overall collection; displays findings in graphical and textual reports; and, contributes to the dissemination of information. The comprehensive nature of

OSALAT allows the automating of information analysts' business processes that are currently handled manually.

Retrieval of documents does not guarantee useful data and useful intelligence may not be found in those documents. OSALAT extracts information from documents using several state-of-the-art processes and artificial intelligence algorithms to provide extraction capabilities that "learn from their own errors," supports identification of relationships between them, and also collects this information on a case-wide basis. Through these capabilities, OSALAT provides cross-document intelligence gathering, which is being used extensively by the U.S. Army today.





## High Speed Optics for Broadcasting



Physical Optics Corporation developed a new technology for high-speed communication interfaces based on optical modulation circuits and vertical cavity surface emitting lasers. These interfaces are required to achieve broadcast-quality transmission in the transition from analog to digital audio/video formats and are integral to military communications, television broadcast, and movie post-production facilities.

This high-speed link technology spawned a family of system products, commercialized under the name Broadcast Facility Link

Platforms (BFLPs). Manufactured products include fiber optic transport and conversion links for video, audio, control, data communications, and telecom signals. These products are designed specifically for digital data transmission and broadcasting applications, and provide full support for numerous signal formats and data types, all in one platform. They offer dense, economical card housing, as well as redundant power supplies, excellent cooling, and hot swappable cards.

The BLFP technology developed in this project also launched a new spin-off company, Broadata Communications, Inc. (BCI), focusing on commercializing broadcast-quality audio/video fiber links used by television stations and movie post-production facilities.



### Phase III IMPACTS

- Over 55 units sold to DoD generating over \$200K in sales.
- Over 153 units sold to the private sector generating over \$700K in sales.
- \$900K in Federal/Private funds for additional R&D.
- \$204K in Government/DoD investments for Phase III.
- Over \$1.52M in non-DoD contributions for Phase III.
- Product used in the Army Data transport system, NATO Center in Germany.



Hysitron, Inc., Minneapolis, MN

U.S. Army Research Laboratory

## Portable Nanomechanical Test Instrumentation

### Phase III IMPAIRS

- Over \$669K in DoD R&D funds.
- Over 700 units sold to date generating over \$26M in revenue.
- Private sector investors include Seagate, Xerox, and Dow Chemical.
- Current customers include The University of California at Berkeley, MIT, and General Electric.



Advanced materials are an integral part in the development of new technologies that can benefit the Army. Nanotechnology contributes to the creation of many of these materials, and continued improvements in nanomechanical characterization are key to further development in this field. Hysitron develops and produces instrumentation for testing at nanoscale that facilitates the development of next generation overcoats, diamond like coatings, composites, alloys, polymers, biomaterials, and biomimetic materials.

Hysitron's industry-leading instruments include the TriboIndenter® nanomechanical test instrument, the TriboScope® nanoindenter which can be added to commercial AFMs, and the Ubi 1® dedicated scanning nanoindenter. These high-

performance testing systems are based on patented three-plate capacitive transducer technology known for its sensitivity and stability, providing systematic access to quantitative data at nanoscale. Innovative *in-situ* imaging allows pre- and post-test scanning as well as test positioning with a resolution of better than 10nm.

Customers that benefited from the purchase of Hysitron equipment include DoD labs, National Laboratories, and academic institutions. The Army Research Laboratory studied advanced laser refractive coatings and dental materials while the Naval Research Laboratory worked with polymers, MEMS and self-cleaning materials. National Laboratory research at Los Alamos, Sandia, Lawrence Berkeley, and Lawrence Livermore included tests on MEMS, plutonium, biomaterials, and optical lens coatings.

Many laboratories in the private sector also invested in Hysitron instruments. Research examples include next generation overcoats at Seagate, paper and printer materials at Xerox, and polymers at Dow Chemical. The University of California at Berkeley, MIT, and General Electric also purchased Hysitron instruments. Nanoindentation will continue to be a valuable tool in developing materials that will benefit the safety of soldiers and all of us in our daily lives.



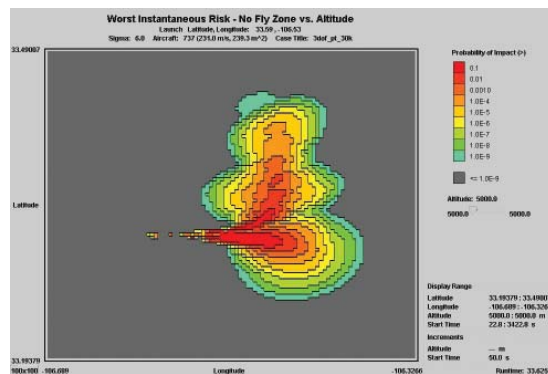


# Accurate Characterization of Missile Debris



The interception of a target or the failure/termination of a launch or re-entry vehicle can produce an enormous amount of debris of varying size and mass. As this debris falls back to earth, it poses hazards to anything in its path. The Aircraft Vulnerability Model (AVM) was designed as a range flight safety analysis software tool for use in missile intercept pre-flight planning and near-real time missile flight test operations to determine the risk to aircraft flying near or through the area of operations. AVM propagates the three-dimensional, time-phased debris cloud from the near space impact or failure point to predict the time, location, and degree of debris impact hazards, allowing risk assessments for anything or anyone that might be affected. Timely, prudent steps can then be taken by decision-makers to keep the risks at a low level, and after the event, AVM enables the airspace to be opened sooner.

The Army is currently using AVM at the White Sands Missile Range and it will also be included as part of the analysis suite of software that the Missile Defense Agency will provide to all its ranges for their flight safety analyses. The Air Force and other governmental agencies are currently considering AVM for their operational use. AVM is being continually enhanced by integrating its output data to several geographical display programs and by improving its run-time characteristics.



## Phase III IMPACTS

- Over \$1.4M R&D funds contributed by the U.S. Army White Sands Missile Range.
- Over \$100K of non-DoD contributions for further R&D.



## Water Recovery From Engine Exhaust

### Phase III IMPACTS

- US Patent 6,581,375: Jagtoyen, et al., issued June 24, 2003 "Apparatus and method for the recovery and purification of water from the exhaust gases of internal combustion engines."
- \$3.1M R&D funds contributed by the U.S. Army.



A soldier requires 1.5 to 3.5 gallons of water per day to prevent dehydration. When personal hygiene, combat meal preparation, and emergency medical treatment are added, this becomes 6.6 gallons or 55 pounds per soldier per day. Water distribution is projected to be 30% of the Future Force daily sustainment requirement. The U.S. Army TARDEC is developing novel technologies to produce water anywhere on the battlefield, thereby reducing the water logistics footprint. One of the most promising concepts under development is the recovery of water from internal combustion engine exhaust, in which, theoretically, one gallon of diesel fuel could produce approximately one gallon of water.

LexCarb LLC demonstrated that the water in the exhaust could be collected and purified to drinking water standards. To recover potable water from engine emissions, the water must be condensed from the exhaust gas and then purified. The

condensate contains oxides of nitrogen and sulfur from the combustion process that make the water very acidic and it is full of soot particles, organic compounds from incomplete combustion, metals, and contaminants from fuels, oils, and corrosion. LexCarb developed and tested a HMMWV-mounted system that consistently recovered 50 to 60% of the available water. The treatment train consists of filtration, activated carbon, and ion exchange resin. The water treatment was effective in removing all regulated contaminants below drinking water standards.

These systems may revolutionize battlefield water sustainment by producing drinking water wherever the soldier is and reducing the quantity and frequency of water resupply. Water resupply may transition from a daily requirement to a weekly requirement, creating a cascading reduction in the overall battlefield logistics requirements.

# Army SBIR Commercialization

During Phase III of the U.S. Army SBIR Program, small companies are expected to obtain funding from the private sector and/or non-SBIR government sources to develop prototypes from Phase II into products for sale in private sector and/or military markets. U.S. Army Phase III commercialization success encompasses the following aspects:

## Sales

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“Sales” includes cash revenue from the sale of new products or non-R&D services embodying the specific technology and/or spin-off technology developed under this Phase II project.

The only “sales” revenue counted is that accruing to the firm itself and not to other entities, except in the following circumstance: If the firm is sold or licensed to another entity, the technological know-how developed under Phase II also counts as “sales” the cash revenue accruing to the other entity from its sale of new products or non-R&D services embodying the Phase II technology.

If the new product/service embodying the Phase II technology is a component of a larger product/service (e.g., an improved coating on an existing optical lens product), the only “sales” counted are those that are attributable to the component rather than the larger product/service.

## Additional Investment

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“Additional Investment” includes investment from any source other than the federal SBIR/STTR program in activities that further the development and/or commercialization of the specific technology developed under the Phase II project. Examples of such activities include:

- Additional R&D on the Phase II technology
- Manufacturing/production start-up
- Purchase of plant and equipment for manufacturing/production
- Protection of Intellectual Property
- Obtaining certifications
- Marketing start-up and marketing
- Training of workforce to manufacture or sell new products embodying the Phase II technology

These may be activities funded and conducted by a firm itself or by other entities.

## How to Get Your Story Published

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The U.S. Army SBIR Commercialization Brochure is published annually. The brochure highlights the positive impacts made by small firms that commercialize SBIR-sponsored products or services. The Army Research Office in Washington (ARO-W) distributes this high-quality, full color brochure within the Army/DoD community and to the private sector at a number of conferences and other venues across the country. These brochures provide excellent visibility to your company as well as your products and services. Please note that there is absolutely no fee for your participation. If your firm has had Phase III success, we would like to consider your story for inclusion in the next U.S. Army SBIR Commercialization Brochure. For more information, visit [https://www.armysbir.com/success\\_stories/index.html](https://www.armysbir.com/success_stories/index.html) or contact the Army SBIR Program Management Office.



# SBIR Phase II Quality Awards

The Army SBIR Program sponsors an annual Quality Awards Program that recognizes exceptional Army SBIR Phase II projects. Each year, a distinguished panel of Army and industry experts selects the winning projects from nominations submitted across the Army.

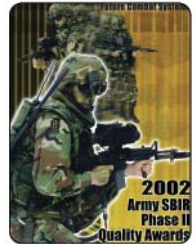
During the 02.2 Solicitation, the Army received over 3000 Phase I proposals, of which 350 were chosen for Phase I award. During the same fiscal year, the Army invited and received over 340 Phase II proposals, of which 180 were selected for award.

This year, as in the past, the competition was keen. The Army received 32 Quality Award nominations and selected six winning projects. These six projects represent the best in technology innovation, relevance to the needs of the Army, and commercialization potential.

In recognition of their accomplishments, the winners and their projects are showcased at several Army conferences and symposia throughout the year via this Army SBIR Phase II Quality Awards brochure.



2002



## **Fuel Supply for Portable Power**

Mesoscopic Devices, LLC  
U.S. Army Research Office

## **Secure, Distributed Decision Aids**

Architecture Technology Corporation  
U.S. Army Communications-Electronics Command

## **Mobile Frequency Hopping Communication System**

TrellisWare Technologies, Inc.  
U.S. Army Research Laboratory

## **Snow Probe**

Capacitec, Inc.  
U.S. Army Research Office

## **Nuclear Battery**

TRACE Photonics, Inc.  
U.S. Army Armaments Research, Development & Engineering Center

## **Missile Design Thermal Analysis**

Mesa Associates, Inc.  
U.S. Army Missile Research, Development & Engineering Center



## The 2003 Phase II Quality Award Winners

### **Real-time Sensors**

Surface Optics Corporation  
U.S. Army Armaments Research, Development & Engineering Center

### **Continuous Power Anywhere**

HI-Z Technology, Incorporated  
U.S. Army Armaments Research, Development & Engineering Center

### **Automated Measurement System for High Precision Optics**

QED Technologies  
U.S. Army Armaments Research, Development & Engineering Center

### **Transparent Ceramics**

Technology Assessment and Transfer, Inc.  
U.S. Army Research Laboratory

### **Communications Intercept & Speech Translation for Security**

Technology Engineering Research, Inc.  
U.S. Army Communications-Electronics Command

### **Micro-displays for Situational Awareness**

Universal Display Corporation  
U.S. Army Communications-Electronics Command

# Past Quality Awards Winners

**2001**



**Electromagnetic Interference Shielding**  
Ormet Circuits, Inc.  
*U.S. Army Space & Missile Defense Command*

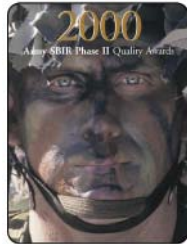
**Barrel Armor**  
TPL, Inc.  
*U.S. Army Research Office*

**Increased Power**  
Lynntech, Inc.  
*U.S. Army Research Laboratory*

**Site-Specific Radio Communication**  
Remson, Inc.  
*U.S. Army Research Office*

**High Resolution Micro-Display**  
eMagin Corporation  
*U.S. Army Communications-Electronics Command RD&E Center*

**2000**



**Student-Centered Learning System**  
Farance, Inc.  
*U.S. Army Communications-Electronics RD&E Center*

**Rapid, Effective Malaria Test**  
Flow, Inc.  
*Walter Reed Army Institute of Research*

**Smart Armor Structures**  
Production Products Manufacturing & Sales Inc.  
*U.S. Army Research Laboratory*

**Computer-Aided Design**  
ThermoAnalytics, Inc.  
*U.S. Army Research Laboratory*

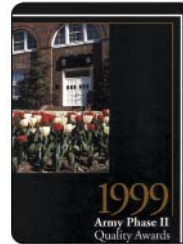
**Better Communications**  
Cree, Inc.  
*U.S. Army Research Laboratory*

**Night Driving Simulator**  
DCS Corporation  
*U.S. Army Simulation, Training and Instrumentation Command*

**Detection of Mosquito-Borne Pathogens**  
Medical Analysis Systems, Inc.  
*Walter Reed Army Institute of Research*

**High-Speed Munitions Inspection**  
Skiametrics, Inc.  
*U.S. Army Armaments RD&E Center*

**1999**



**Single Antenna Feed, Multiple Band Satellite Communications**  
Austin Info Systems, Inc.  
*U.S. Army Communications-Electronics Command RD&E Center*

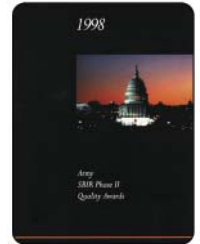
**Remote Triage Sensors**  
Empirical Technologies Corporation  
*U.S. Army Medical Research and Materiel Command*

**Improved Decision-Making Training Aids**  
Cognitive Technologies, Inc.  
*U.S. Army Research Institute*

**Lightweight Digital Display Screen**  
Diamond Visionics, LLC  
*U.S. Army Simulation, Training and Instrumentation Command*

**Pressurized Airbeams**  
Federal Fabrics-Fibers, Inc.  
*U.S. Army Natick Soldier Center*

**1998**



**Two Color Per Pixel Staring Focal Plane Array**  
Amain Electronics Company, Inc.  
*U.S. Army Communications-Electronics Command RD&E Center*

**Extremely Lightweight Fuel Cell Stacks**  
Analytic Power Corporation  
*U.S. Army Research Laboratory*

**Lightweight Monopolar Fuel Cells**  
Lynntech, Inc.  
*U.S. Army Research Laboratory*

**Self-Correcting Neural Sensor Fusion**  
Physical Optics Corporation  
*U.S. Army Missile RD&E Center*

**Feature-Based Rapid Map Generation System**  
Vexcel Corporation  
*U.S. Army Topographic Engineering Center*



# Outreach and Sources of Information

[www.aro.army.mil/arowash/rt](http://www.aro.army.mil/arowash/rt)



The Army SBIR Program conducts an aggressive outreach program to increase small business awareness of broad opportunities provided by the Army. Army SBIR personnel participate in national, regional, and local conferences across the country. This provides small businesses with face-to-face contact with people who are knowledgeable about Army needs and the SBIR process. The Army SBIR Web Site identifies upcoming events at which the Army will be participating.



The Army SBIR Web Site provides online access to comprehensive information about the Program:

- General Information (on participating in the Program)
- Changes and New Requirements
- Points of Contact and Links (to other Army programs and related SBIR sites)
- Proposal Submission (procedures and entry points)
- Recent Army SBIR Awards
- Searchable Database of Past Awards
- Chemical-Biological Defense SBIR Program (Joint Army/Navy/Air Force/SOCOM)
- Phase III Success Stories
- Phase II Quality Awards Program





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